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ABSTRACT

A study analyzed the use of extension services by traditional Arab farmers in Israel (Nazareth region) and in the Gaza Strip. The study was an attempt to follow up on work done in the 1960s and the early 1970s by Arnon. The research questions for this study were as follows: (1) How strong is the demand for extension now? (2) Which are the most effective ways in which extension serves farmers--as viewed by the farmers? (3) Do farmers' leadership qualities affect their use of extension? and (4) Are there differences between the Nazareth and Gaza regions, in relation to these questions and, if yes, how can they be explained? A questionnaire was developed. Interviews took place with 48 farmers from 4 villages in the Nazareth region and 56 farmers from 5 villages in the Gaza strip. Findings from the study indicated that Nazareth farmers had a higher rate of contact with extension, when compared to the Rehovot (Jewish) region. Extension advisers in the Nazareth region tended to meet mainly with full-time farmers. In the Gaza strip, nearly all farmers had contact with local advisers. Members of agricultural committees tended to have more frequent contact with advisers, and membership in an agricultural committee is a sign of leadership. Farmers in both regions rated the personal visits of advisers highest among the extension activities. In spite of the different histories of extension in the Nazareth and Gaza regions, there were more differences between Jewish and Arab family farmers in their use of extension services than between farmers in the two Arab regions. (An eight-item reference list is attached.) (NLL)

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# USE OF EXTENSION SERVICES BY TRADITIONAL ARAB FARMERS IN ISRAEL AND IN THE GAZA STRIP

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# USE OF EXTENSION SERVICES BY TRADITIONAL ARAB FARMERS IN ISRAEL AND IN THE GAZA STRIP[1,2]

by Abraham Blum[3]

## 1. Introduction

Arab farmers in the Nazareth region of Israel and in the Gaza strip live in traditional, mainly Moslem village communities. The size of a farm ranges mainly from 1 to 5 ha. About half of the the farmer cultivate 1 to 2 ha, in the Gaza strip even less. The land is owned by the farmer or his extended family. Due to the rules of inheritance, the land is divided and subdivided into a large number of small patches. Land is divided among all heirs, in equal parts. Rosenfeld (7) cites a case, in which a farmer, four generations ago, owned 150 ha. Today, each of his 30 great-grandchildren has 4.7 ha. Often, a farmer tills also the land of other relatives, but leasing land is relatively seldom. In the average farm family live 7 persons; in over 80% of the families two generations live together. The older farmers received a partial or full elementary education; their sons tend to remain in school longer than their fathers. The head of the extended family has a very strong position and usually emphasizes tradition and a conservative way of life. Women are not supposed to work outside the farm. Family honour is fiercely defended. Because of the relative strength of the Hamullah, the extended family, few cooperatives exist in the Arab farming sector. These were formed (with the help of extension advisers) only when external circumstances made their formation necessary, e.g. to get water from the national water company which deals only with villages, and not with individuals. Municipalities are weak.

Farmers in the Nazareth region and to a lesser degree in the Gaza strip have contacts with Jewish settlements in their neighbourhood - collective Kibbutzim and, even more, Moshav smallholder cooperatives. These differ in many ways from the Arab villages. They till nationalized land, leased for a 49 year period. The size of the land allotted to each family is larger. The typical nuclear family consists of 4 persons. Married children do not live with their parents. In the absence of an agricultural tradition, innovations are readily adopted. The village is has many cooperative arrangements, from cooperative owning of farm machinery and cooperative buying of inputs to cooperative marketing. No barriers

of tradition hinder the acceptance of innovation; family relations are similar to those in Europe or America.

Until 1948, both the Nazareth region and the Gaza strip were parts of British ruled Palestine. Agriculture in both regions remained without many changes, although the Nazareth region received more attention by the authorities. The major breakthrough came to the Nazareth region after the establishment of the State of Israel, and especially after the establishment of a regional extension bureau in Nazareth, soon after a national Extension Service was set up in the Israeli Ministry of Agriculture, in 1960. Arnon et al. (1,2) have described the rapid agricultural development in the Arab sector of Israeli agriculture and the central role which extension played in this development. Natour (6) investigated the economic contribution of the agricultural extension system in the Nazareth region, and Tsur (8) studied the impact of the irrigation cooperatives, which were set up in the Arab agricultural sector with help of the extension service.

The agricultural development in the Gaza strip was slower, and its exposure to intensive agricultural extension came later. Under Egyptian rule, between 1948 and 1967, the main emphasis was put on the rapid development of citrus groves. Agricultural officers were more concerned with supervising packing and marketing and with other regulatory tasks than with extension. The priority of roles changed in favour of a more intensive extension effort, after the Israeli occupation of the Gaza strip in 1967. Until recently, in the Gaza strip no research has been conducted on the development and impact of agricultural extension. Blum (3) analyzed this development in both regions and especially the factors which made the effective contribution of agricultural extension possible.

In both regions, local extension advisers have quite a good professional background, many of them (and especially the younger ones) hold a Bachelor's degree in Agriculture. Both groups have ready access to central and regional research institutes and to the pool of subject matter specialists in the Israeli extension service. However, the advisers in the Gaza strip continue to fulfill also statutory functions, while their peers in the Nazareth region devote all their time and efforts to extension only.

Since Arnon and his colleagues studied the developments in the Arab sector of Israel's agriculture and the relations between farmers and extension, during the 1960's the early 1970's, no follow-up studies were made, and the only study reported from the Gaza strip did not explore farmer-extension contacts. Therefore the following questions arose:

1. How strong is the demand for extension now?
2. Which are the most effective ways in which extension serves farmers - as viewed by the farmers?
3. Do farmers'leadership qualities affect their use of extension?
4. Are there differences between the Nazareth and Gaza regions, in relation to these questions and, if yes, how can they be explained?

## 2. Methodology

### 2.1 Development of the Questionnaire

A 62 item interview questionnaire was developed. The following independent variables served to explain the results which were obtained: age, education (number of school years), agricultural education, size of the farm operations, the time a farmer devotes to the work on his farm, his innovativeness and involvement in field trials (as assessed by himself) and his membership in agricultural committees. The last factor was used as indicator of leadership.

In the Gaza strip practically all farms were irrigated, but not so in the Nazareth region. In order to allow for meaningful comparisons on the basis of land being cultivated, the actual rainfed area under the control of a farmer in the Nazareth area was multiplied with the ratio of income from a unit of rainfed land to the income from irrigated land and added to the irrigated area which he cultivates. The ratio was 1:5 for most villages.

The questionnaire was content validated by a professional panel, in which the head of the Nazareth extension bureau and a representative of the national extension service (Shaham) participated. The questionnaire was then field tested by interviewing farmers in 3 villages in the target region. At this stage, field investigators were trained in conducting the structured interviews. Based on the preliminary run, small changes were made in the phrasing of the questionnaire.

2.2 The Sample and Administration of the Questionnaire

The interviews took place in the farmers' homes. 48 farmers from 4 villages in the Nazareth region and 56 farmers from 5 villages in the Gaza strip were interviewed.

The only other extension region in Israel, in which a similar survey was conducted, is Rehovot (4,5), where a survey was conducted on Moshav smallholders. The results obtained in this investigation were compared, when possible, with parallel data from the Rehovot region.

Using the SAS statistical package, crosstabulations and correlations were computed and tested on their statistical significance. The questionnaire contained a number of nearly parallel dependent variables to measure the contact between farmers and the extension system. Principal Component Analysis was used to construct a linear combination of those variables having maximal variance relative to the total variance of the variables. Since a number of mutually dependent explanatory variables influenced the dependent variables, a stepwise regression procedure was used to identify the relative importance of these variables.

3. Findings and Discussion

3.1. Contact with extension

67% of the farmers in the Nazareth region said they were in contact with extension advisers. This is less than in the denser populated Rehovot region, where 86% of the family farmers had such a contact with extension; but also the Nazareth figure indicates a high extension-clientele contact.

Extension workers in the Gaza strip see extension as their main task, but they fulfill also statutory functions. This difference between the Nazareth and Gaza regions explains at least partly why 96% of the farmers (an unusually high percentage) in the Gaza sample said they had contact with the extension staff. This figure alone does not indicate, how frequent the contacts wer

Table 1 shows the frequency of contact with the advisers, in the different regions. In order to check the answers, farmers were also asked, when they had last met the extension adviser. The correlation between the two questions was

r=0.76 ($p<0.0001$). Percentage figures relate to the total of farmers who have contact with extension.

(ABOUT HERE TABLE 1)

Those farmers in the Nazareth region, who did have contacts with extension, indicated more frequent contacts than their Gaza or Rehovot peers. It seems that extension advisers in the Nazareth area prefer to work with fewer farmers, but at a more intensive rate. They worked more with full-time farmers than with part-time farmers ($X^2=12.0$, $p<0.001$).

Arab farmers had more contacts with their extension advisers than Moshav farmers. The mode in the Rehovot region was a quarterly contact with extension.

When farmers were asked, when they had last met the extension adviser, they indicated a higher frequency, especially in the Gaza area. This difference was probably due to the fact that the interviews took place during a peak agricultural season, when contacts between farmers and advisers are more frequent.

Membership in agricultural committees can be taken as an indicator for agricultural leadership. In the Nazareth area 28% of the respondents were members of a committee, in the Gaza strip 32%. In the Gaza strip, members of agricultural committees met with advisers considerably more often than their peers who were not members of a committee. Among the former, 82% had at least a monthly contact, compared to 52% of non-members.

Forty-six percent of those farmers in the Nazareth region who did not have any contact with extension advisers indicated that they did not know any adviser, and 62% actually could not give the name of an adviser. Through more promotion probably more farmers could be drawn into the extension-farmer system; but that is difficult at a time, when the extension service is being curtailed, petrol allowances for farm visits are reduced and the large majority of farmers (especially full-time farmers) have already regular contacts with extension. Those farmers who did not have contact with extension gave different reasons for the lack of contact, but unwillingness on the part of the advisers was not among them.

Principal Component Analysis showed that the three variables "contact with extension", "frequency of contact" and "last contact" had similar weights (0.57 - 0.58) in a principal component which explained 95% of the variance, in the Nazareth region. In the Gaza strip, the principal component explained only 68% of the variance, mainly because of the discrepancy between "contact" (which nearly all farmers had to have, due to the statutory functions of the extensionists in the region) and the measures of general and last frequency of the contact. The weights were 0.36 for "contact" and 0.65 and 0.66 for the two other variables.

Stepwise regression procedure was applied to assess the influence of various independent variables on the principal component. In both the Nazareth and Gaza regions the most influential variable was "innovativeness", as measured by farmers' self-assessment of how quick they usually adapt new technologies, compared to other farmers in the village. In Nazareth the partial $R^2$ of this variable was 0.32 ($p<0.001$), in Gaza the partial $R^2$ was 0.14 ($p<0.02$). Apparently, agricultural advisers prefer to work with innovators and innovators tend to go to extension for advice.

The only other variable which entered the stepwise regression model with a high significance level ($p<0.0002$) was the relative working time devoted to the farm, in the Nazareth region. Full-time farmers had more frequent contacts with extension than part-time farmers.

3.2 Contribution of various extension activities

Table 2 summarizes the percentages of farmers who participated in different types of extension activities, and their rating of the relative contribution of each type of activity to their practical agricultural knowledge. Farmers were asked to rate the contribution of each type of activity on a five point scale from five (very much) to one (very little). When farmers did not participate in an activity, it could not contribute to his knowledge and therefore it was rated one. P% indicates the percentage of farmers in the sample who had participated in the activity.

(ABOUT HERE TABLE 2)

The activities in the table are ranked according to their mean contribution to farmers' practical agricultural knowledge and according to the participation

rate (P%) in the Nazareth region. Both rankings are identical. Also in the Gaza strip, there is a high correlation between participation in a certain activity and its con. ibution to farmers'agricultural knowledge.

In the Nazareth region the contribution of all extension activities (with the exception of the least popular activity - participation in courses) were highly intercorrelated ($p<0.0005$) with each other, with correlation indices ranging from 0.49 to 0.78. Farmers who appreciated one form of extension tended to do so also in respect to most of the others. The exception was farmers' reluctance to attend courses (which take them away from their homes for more than a day at one time).

In the Gaza area, group meetings and office visits are more common than in other regions. The unusually high percentage of Gaza farmers who had received the visit of advisers on their farms, had paid visits to the office and participated in group meetings, in their villages, can be explained by the fact that advisers in the Gaza strip fulfill also statutory, supervisory and regulatory functions. On the other hand, participation in typical professional training activities like one day seminars and courses was much lower, in the Gaza strip. The rates of contribution of these activities was in the Gaza strip similar to that in the Rehovot region.

In the Gaza strip, where some meetings with advisers have a statutory function, the correlations between different extension activities were usually smaller. Also the correlations between frequency of contact with extension and participation in activities were not so strong as in the Nazareth region, where extension workers have only an advisory role. The highest correlation in the Gaza region was between participation in one day seminars and calls to the adviser's home ($r=0.47$, $p<0.0005$), indicating that those who have close personal relations to an adviser, tend to come more often to seminars and appreciate them more than others.

Among the independent variables, innovativeness and the rate of participation in field trials had the highest correlations with the different forms of extension activities. (Again, the less popular courses were the exception). In the Nazareth region, indices for the correlations between innovativeness and various extension activities ranged from $r=0.49$ for one day seminars and field

days to r=0.58 for farm visits by extensionists - all significant at the p<0.001 level. The correlations between participation in field trials (which itself is closely connected to innovativeness) and extension activities ranged in the Nazareth region from r=0.41 (p<0.001) for farm visits to r=0.65 (p<0.0001) for home contacts.

Innovativeness was less correlated with extension contacts in the Gaza area, when compared to Nazareth. Only the attendance at field days and one day seminars (which are least connected with the statutory functions of the advisers) were significantly correlated with innovativeness (r=0.41, p<0.005). Where Gaza farmers had indicated a high participation rate, due to the statutory functions of the advisers, innovativeness was no significant correlate.

Farmers in all regions value above all visits of advisers to their farm. In contrast to the Jewish farmers, their Arab peers tend to call less on advisers in their homes or by phone. In the interviews, some the Arab farmers expressed their feeling that telephone calls to extension advisers, after work, would be considered an intrusion into their private life and a lack of respect. The relatively large standard deviations show that there is no consensus on this questions. Those Arab farmers who did call on their advisers after work might be personal friends or influential farmers. The high correlation of r=0.81 (p<0.0001) between the size of the farm operations and telephone or personal calls (in the Nazareth region) indicates that bigger farmers felt more free to call on the advisers after working hours than others. In the Gaza strip, the more educated (who are dominant in committees tended to do so (r=0.34, p<=0.01).

Among the Moshav farmers, the outlook was more businesslike. As long as the advisers themselves encourage or at least allow evening telephone calls - why not use this efficient way of receiving information? It is also possible that the contacts by phone were fewer in the Nazareth and Gaza regions, because there fewer farmers have telephones, compared to the Rehovot area.

The participation at one day seminars, often in form of field days with practical demonstrations was more popular and deemed more useful in the Nazareth region than in the other regions. Members of local, agricultural committees participated more in one-day seminars and demonstrations than non-members (Wilcoxon z=3.32, p<0.001).

Fifty-two percent of the farmers in the Nazareth sample had participated during the last year in a special one-day extension event, mainly field days on irrigation, farm machinery and plastic covering. 84% of those who attended one-day seminars or field days were full-time farmers.

Farmers in all regions did not consider courses as having contributed much to their knowledge. Only few farmers participated in them. Also regional extension directors complained that only few farmers attended courses. Apparently, even innovative family farmers find it more difficult to attend courses which take them from their farms for some days. They prefer shorter extension activities.

3.3 What kind of advice is given and what is prefered by farmers?

Farmers were asked, in two separate questions, at what frequency they discussed with the advisers agrotechnical or economic aspects, respectively, of their farming problems. The ratings ranged from one (for never) to five (always). Table 3 summarizes the results.

(ABOUT HERE TABLE 3)

Farmers and extension advisers discuss considerably more professional than economic aspects of their farming problems. The biggest gap seems to exist in the Gaza region, but the differences were highly significant ($p<0.001$) in all regions. The correlation between the answers given to the two questions was quite high (0.79 for Nazareth, 0.53 for Gaza, 0.65 for Rehovot). Farmers who often discussed one of the aspects, did so also relatively more in respect to the other aspect.

Farmers were then asked if more economic advice should be offered and if they, personally, would like to have more economic advice. The results are summarized in Table 4.

(ABOUT HERE TABLE 4)

A large majority of farmers believe that more economic advice is needed. The figures for personal needs are slightly smaller, but still very dominant. Most farmers confess that they personally need this advice and would make use of

it. This reinforces also a similar finding in an earlier investigation on the use of written extension materials in the Rehovot region (Blum & Azencot, 1986). The felt need for more economic advice was stronger in the Arab regions, where nearly all respondents expressed at least a "general", but mostly also a personal need for more economic advice. Moshav farmers have the opportunity to receive economic advice from the treasurer of their village cooperative.

When respondents were asked, if they prefer clear cut advice or alternatives from which to choose, the majority (64% in the Nazareth region, and 74% in the Gaza strip) were in favor of clear advice. There was, however, a difference between members of agricultural committees and non-members, in the Gaza strip. Fifty-eight percent of committee members were in favour of alternatives, in contrast to only 24% among non-members.

In the Rehovot research (4), the question was asked in relation to written advice (extension leaflets). There, 63% of the Moshav farmers were in favor of alternatives, from which they could choose. Preferring alternatives over "recipes" can be interpreted as a more advanced stage of sophistication in using extension advice for agricultural decision making.

3.4 Possible alternatives for extension?

Farmers were asked the provoking questions, how they would be affected, if the extension offered by the Ministry of Agriculture would cease, and what they would do in such a case. 64% of respondents in the Nazareth region said they would suffer, should the extension service be discontinued. There was a clear difference between full-time and part-time farmers. More than 82% of the former, but only 9% of the latter stated that they would be badly affected without extension. (Many of the part-time farmers had no contact with extension, in any case). Ninty percent of those who had contact with extension said it would be hard for them if the extension service should be discontinued. They apparently knew what they could lose. There was also a highly significant correlation between innovativeness and need for extension ($r=0.53$, $p<0.0001$).

In the Gaza strip, where more farmers work full-time on their farms, 79% of the respondents said that they would suffer, should extension be discontinued.

Table 5 summarizes the alternatives which farmers would choose, in case the extension activities of the Ministry of Agriculture should be suspended.

(ABOUT HERE TABLE 5)

Most farmers were perplexed, when the question was asked and expressed their hope, the situation would not arise. Pressed, what they would do, most mentioned as their next best source of advice - other farmers. A minority thought about the possibility of private extension advice. In the Gaza strip, more farmers would turn to their present advisers (who probably would continue to be Ministry of Agriculture employees, because they fulfill there also other than extension functions).

In Israel, the Ministry of Agriculture recently cut the number of its extension advisers and there are already some private extension advisers working, mainly in plant protection and in cooperatives which supply feedstuff. Some of these private advisers had worked in the past for the Ministry of Agriculture. Therefore, when 17% of Nazareth farmers said they would seek advice from private extensionists, this could include their former advisers who, in such a case, would no longer work for the Ministry of Agriculture.

Only very few farmers indicated that they would just rely on themselves, rather than asking somebody else's opinion.

## 4. Summary

In this paper we looked into the contacts between farmers and advisers in two regions, Nazareth and Gaza. Both areas are populated by Arab farmers, living in traditional villages. In the Nazareth region, extension is older and the geographic proximity to the Jewish cooperative (Moshav) smallholders had its effect. In both cases, extension advisers are supported to some extent by regional, adaptive research, but more so by the Israeli agricultural research system.

Nazareth farmers had a higher rate of contact with extension, when compared to the (Jewish) Rehovot region. Extension advisers in the Nazareth region tend to meet mainly with full-time farmers. In the Gaza strip practically all farmers

had contact with local advisers, because these fulfill also statutory and supervisory functions in the Ministry of Agriculture. If we base our comparison on the frequency of contacts, the two regions showed a similar profile. Arab farmers rated the practical value of extension to their agricultural knowledge higher than their Jewish peers. Since only very few Arab farmers had been educated in agricultural schools or training centres, but many of their Jewish peers had done so, this difference can explain the more frequent and more valued contact between Arab farmers and their extension advisers.

Most of the findings are similar in both regions. Members of agricultural committees tend to have more frequent contact with advisers. Membership in these committees was significantly correlated with innovativeness and readiness to experiment on their fields. Innovativeness was actually the variable which came out as the most influential on the contact between farmers and advisers. It is difficult to establish, if the contact with extension enhanced innovativeness and readiness to experiment, or the other way round. Probably there is a reciprocal, causal relationship.

Membership in an agricultural committee is a sign of leadership. In the Nazareth region, membership in a committee was significantly correlated with the size of farmers' agricultural operations; i.e. larger farmers were more influential. In the Gaza strip, where the standard deviation for farm size was smaller, membership in committees was significantly correlated with years of education. The "rural intelligentsia" played a greater leadership role.

Farmers in both regions rated the personal visits of advisers to their farm, the typical extension activity in Israel, highest among the extension activities. They discussed with extensionists, all of whom are actually specialists in their agricultural branches or services, more agrotechnical issues than economical problems. The latter was seldom in the Gaza strip, but farmers in both regions were unanimous in their plea for more economic advice.

The large majority of farmers, especially full-time farmers, innovators and leaders stated that they would lose out, should the extension service be discontinued. The next best solution for them would be to discuss their problems with other farmers. Commercial firms, mass media or the participation in courses play practically no role in their thinking about extension opportunities.

An interesting socio-cultural difference between Arab and Jewish farmers was the different approach to calling by phone or personally on extension advisers in their homes, after working hours. While this is quite an accepted procedure among Moshav farmers, it is usually not considered proper among Arab farmers. However, there was a considerable variance in this respect, and especially bigger farmers (in Nazareth) and more educated ones (in Gaza) - those who are on committees and have a more intimate contact to advisers, feel more free to call upon advisers also in their homes.

Another difference between Jewish and Arab farmers seems to exist in respect to the type of advice preferred - a clear cut "do it so" or alternatives from which one could choose. The majority of Jewish farmers preferred alternatives. Among Arab farmers the preference was for clear cut advice, but the more leading and sophisticated farmers (committee members) preferred alternatives.

In spite of the different histories of extension in the Nazareth and Gaza regions, there are more differences between Jewish and Arab family farmers in their use of extension services than between farmers in the two Arab regions. The more traditional Arab farmers introduce the same technical innovations which are quickly disseminated by the extension service, as in the Jewish sector; but differences in socio-cultural and organisational patterns influence their differential use of extension. How far these different patterns influence also their decision making on farm issues is a topic which has still to be explored.

The intensive personal contact between advisers and clients was possible in our case, because the area is densly populated, the infrastructure is satisfactory and enough qualified advisers could be recruited. In other cases, intermediate change agents have to be found. Advisers always serve farm leaders, who show a keen interest and are innovative, more than others. The question is: who are the farm leaders? The bigger farmers (as was the case in the Nazareth region) or the more educated (as in the Gaza strip)? The experience with the former as transmitters of extension messages was often problematic. Will the more educated (and not necessarily richer) farm leaders be more efficient in the diffusion of agricultural know-how than others? This is a question well worth further investigation.

Perhaps the most important hint from this study to extension work in developing countries, is the need to offer farmers socio-culturally acceptable extension services. Then, economically sound advice can be accepted and even will be sought by otherwise traditional and conservative farmers. In the beginning, farmers expect clear cut instructions. However, over time and with more sophistication, they themselves can choose the best alternatives among several offered by extension. This necessitates a change in the roles of the extension worker who has to change from instructor to adult educator. When markets become saturated and financial decisions have to be taken, more economic advice is expected from extension advisers.

Zusammenfassung

Diese Arbeit untersucht die Beziehungen zwischen Bauern and Beratern in den Regionen von Nazareth und Gaza, in denen arabische Bauern in traditionellen Dörfern wohnen. In der Region Nazareth ist die Beratung älter und die geographische Nähe zu jüdischen Moschavim (kooperative Familienbetriebe) hatte einen gewissen Einfluss.

Die Bauern in der Region Nazareth hatten mehr Kontakt mit der Beratung als ihre Kollegen in der (jüdischen) Region Rehovot. Im Gaza Streifen hatten praktisch alle Bauern einen solchen Kontakt, weil die Berater auch statutorische Funktionen ausüben. Wenn der Vergleich auf Grund der Kontaktfrequenz angestellt wird, ergibt sich in Nazareth und Gaza ein ähnliches Bild. Die arabischen Bauern schätzten den praktischen Wert der Beratung höher ein als die jüdischen, was auf die unterschiedliche landwirtschaftliche Grundausbildung (die in den arabischen Regionen schwächer war) zurückgeführt werden kann.

In beiden Regionen haben Mitglieder von landwirtschaftlichen Ausschüssen mehr Kontakt zur Beratung als Nichtmitglieder. Die Mitgliedschaft in landwirtschaftlichen Ausschüssen ist in der Region Nazareth mit der Grösse des Betriebs korreliert, im Gaza-Streifen jedoch mit der Anzahl der Schuljahre. In beiden Regionen sind Mitglieder von landwirtschaftlichen Ausschüssen mehr innovativ und mehr an Feldversuchen beteiligt. Ein schrittweises Regressionsverfahren zeigte, dass die Neigung zu Erneuerungen der Faktor war, der die Intensität der Kontakte zwischen Bauern und Beratern am besten erklärte.

Personliche Besuche der Berater (in diesem Fall Fachspezialisten) auf dem Betrieb werden am höchsten geschätzt. Dabei werden mehr agrotechnische als wirtschaftliche Fragen diskutiert. Die Bauern wären aber an einer intensiveren wirtschaftlichen Beratung interessiert. Soziokulturelle Unterschiede zwischen den arabischen und den jüdischen Bauern bringen es mit sich, dass die ersteren ihre Berater weniger oft (am Abend) telephonisch um Rat bitten, wieder mit Ausnahme der Mitglieder von Ausschüssen, die ein engeres Verhältnis zu den Beratern unterhalten. Diese fortschrittlicheren Bauern bevorzugten auch alternative Vorschläge der Berater, während die Mehrheit der arabischen Bauern klare Anweisungen vorzogen.

Auf die provokative Frage, was sie tun würden, falls die Offizialberatung aufgehoben würde, antworteten die meisten, dass sie sich dann vermehrt mit erfahrenen Kollegen beraten würden. Kommerzielle Beratung, Massenmedien und Teilnahme an Kursen spielten nur eine untergeordnete Rolle als mögliche Alternativen.

Der intensive, persönliche Kontakt zwischen Beratern und Bauern war in unserm Fall möglich, da die Gegend dicht besiedelt ist, eine annehmbare Infrastruktur besteht und geeignete Berater zur Verfügung standen. In andern Fällen müssen Vermittler gefunden werden. Berater werden immer Bauernführer, die ein starkes Interesse zeigen und erneuerungsbeflissen sind, andern vorziehen. Die Frage ist: wer sind diese Bauernführer? Die grösseren oder die gebildeteren? Die Erfahrung mit den Ersten als Vermittler von landwirtschaftlichem Rat war oft problematisch. Könnten die Gebildeteren (aber nicht unbedingt reicheren) in der Vermittlung von landwirtschaftlichem Wissen geeigneter sein? Auch das ist eine Frage, die es sich lohnt, weiter zu prüfen.

Die wohl wichtigste Konsequenz betrifft die Notwendigkeit, Bauern soziokulturell annehmbare Beratungsdienste und Methoden anzubieten. Dann können wirtschaftlich vorteilhafte Anleitungen von sonst traditionellen und konservativen Bauern angenommen und sogar nachgefragt werden. Mit der Zeit werden sie selber unter alternativen Ratschlägen der Beratung wählen können. Dabei muss die Rolle des Beraters als Instruktor zu der eines Erwachsenenbildners wechseln, und wirtschaftlichen Beratung wird in steigendem Mass nachgefragt sein.

**Notes**

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References

1. Arnon,I. et al. 1976: "The Changes in the Arab Villages in Israel and in the Areas." Settlement Study Center, Rehovot, Israel.

2. Arnon,I., Molho,S., 1971: "The Changes in Agriculture in Two Arab Villages, and the Contribution of Extension." Volcani Institute of Agricultural Research and Extension and Professional Service, Ministry of Agriculture, Tel Aviv.

3. Blum,A., 1987: "The Development of Agricultural Extension in the Arab Sector of Israel and in the Gaza Strip." Hebrew University of Jerusalem, Faculty of Agriculture, Rehovot, Israel.

4. Blum,A., Azencot,M., 1986: "Reading Habits and Difficulties of Moshav Farmers When Reading Agricultural Extension Publications." The Hebrew University of Jerusalem, Faculty of Agriculture, Agricultural Extension Department, Rehovot, Israel.

5. Blum,A., Azencot,M., 1987: "The Contact Between Agricultural Extension and Family Farmers in Israel - With Some International Comparisons." Paper presented to the 8th European Extension Education Seminar, Reading, U.K.

6. Natour,M., 1982: "The Economic Contribution of the Agricultural Extension Service in the Nazareth Region: With Special Reference to Wheat and Olives". M.Sc. Thesis, Technion - Israel Institute of Technology, Haifa (Hebrew with English summary).

7. Rosenfeld, H. 1964: "They were peasants." Kibbutz Meuhad, Tel Aviv (Hebrew).

8. Tsur,Y., 1985: "Assessment of the Economic Contribution of Bringing Water to an Arab Village. In: New Direction in Agriculture in the Nazareth Region. Ministry of Agriculture, Extension and Professional Service, 11-14 (Hebrew).

Table 1

Frequency of contact with extension advisers (%)

| Average Frequency | Nazareth | | Gaza | | Rehovot |
|---|---|---|---|---|---|
| | annual | last | annual | last | annual |
| Once in 14 days or more | 59 | 68 | 36 | 69 | 26 |
| Once in a month | 21 | 23 | 32 | 21 | 27 |
| Once in 3-4 months | 12 | 7 | 15 | 7 | 34 |
| Once in a year or less | 6 | 3 | 17 | 3 | 12 |

Table 2

Ratings of the contribution of different types of extension activities

| Activity | Nazareth Mean | St.Dev. | P% | Gaza Mean | St.Dev. | P% | Rehovot Mean | St.Dev. |
|---|---|---|---|---|---|---|---|---|
| Farm visit | 2.85 | 1.71 | 67 | 4.00 | 1.20 | 93 | 2.9 | 1.4 |
| One day seminars | 2.48 | 1.73 | 52 | 1.95 | 1.38 | 38 | 1.9 | 1.2 |
| Office visit | 2.29 | 1.62 | 46 | 2.88 | 1.31 | 95 | 2.3 | 1.2 |
| Group meetings | 1.77 | 1.11 | 44 | 3.14 | 1.01 | 98 | 1.4 | 0.8 |
| Adviser, at home | 1.75 | 1.42 | 29 | 1.75 | 1.23 | 41 | 2.2 | 1.3 |
| Course | 1.33 | 1.02 | 10 | 1.37 | 0.88 | 1 | 1.5 | 1.0 |

Table 3

Agrotechnical and economic aspects discussed between farmer and adviser

| Aspects | Nazareth | | Gaza | | Rehovot | |
|---|---|---|---|---|---|---|
| | Mean rating | St.Dev. | Mean rating | St.Dev. | Mean rating | St.Dev. |
| Agrotechnical | 3.10 | 1.69 | 4.04 | 1.22 | 3.03 | 1.38 |
| Economic | 2.54 | 1.67 | 2.25 | 1.20 | 2.03 | 1.22 |

Table 4

Percentage of farmers in favor of more economic extensionadvice

| For whom | Nazareth | Gaza | Rehovot |
|---|---|---|---|
| General need | 98 | 94 | 76 |
| Personal need | 81 | 91 | 64 |

Table 5

Possible alternatives for Ministry of Agriculture extension (%)

| Alternative source for advice | Nazareth | Gaza |
|---|---|---|
| Another farmers | 66 | 53 |
| Private extension adviser | 17 | 10 |
| Commercial supplier | 13 | 13 |
| Former extension adviser | 2 | 20 |
| Rely on himself | 2 | 5 |